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**Sever et al.**

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(54) **SYSTEMS AND METHODS FOR DETECTION  
AND QUANTIFICATION OF ANALYTES**

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(57) **ABSTRACT**

Devices, systems, and methods for detecting molecules of interest within a collected sample are described herein. In certain embodiments, self-contained sample analysis systems are disclosed, which include a reusable reader component, a disposable cartridge component, and a disposable sample collection component. In some embodiments, the reader component communicates with a remote computing device for the digital transmission of test protocols and test results. In various disclosed embodiments, the systems, components, and methods are configured to identify the presence, absence, and/or quantity of particular nucleic acids, proteins, or other analytes of interest, for example, in order to test for the presence of one or more pathogens or contaminants in a sample.

**23 Claims, 44 Drawing Sheets**

